

DEPARTMENT OF THE ARMY TECHNICAL MANUAL
DEPARTMENT OF THE AIR FORCE TECHNICAL ORDER
POWER TRAIN, BODY, AND FRAME FOR 1/4-TON 4 x 4
UTILITY TRUCK M38A1 AND 1/4-TON 4 x 4 FRONT LINE
AMBULANCE M170

TM 9-8015-2	{	DEPARTMENTS OF THE ARMY AND
TO 19-75CAJ-5		THE AIR FORCE
CHANGES No. 1		WASHINGTON 25, D. C., 12 November 1954

TM 9-8015-2/TO 19-75CAJ-5, 2 August 1954, is changed as follows:

The title is changed to **POWER TRAIN, BODY, AND FRAME FOR 1/4-TON 4 x 4 UTILITY TRUCK M38A1 AND 1/4-TON 4 x 4 FRONT LINE AMBULANCE M170.**

1. Scope

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b. This manual contains a description of and procedures for removal, disassembly, inspection, repair, rebuild, and assembly of the power train, body, and frame of the 1/4-ton 4 x 4 utility truck M38A1 (figs. 1, 2, and 3) and the 1/4-ton 4 x 4 front line ambulance M170 (figs. 3.1 and 3.2). The appendix contains a list of current references, including supply manuals, technical manuals, and other available publications applicable to the materiel.

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4. Description M38A1

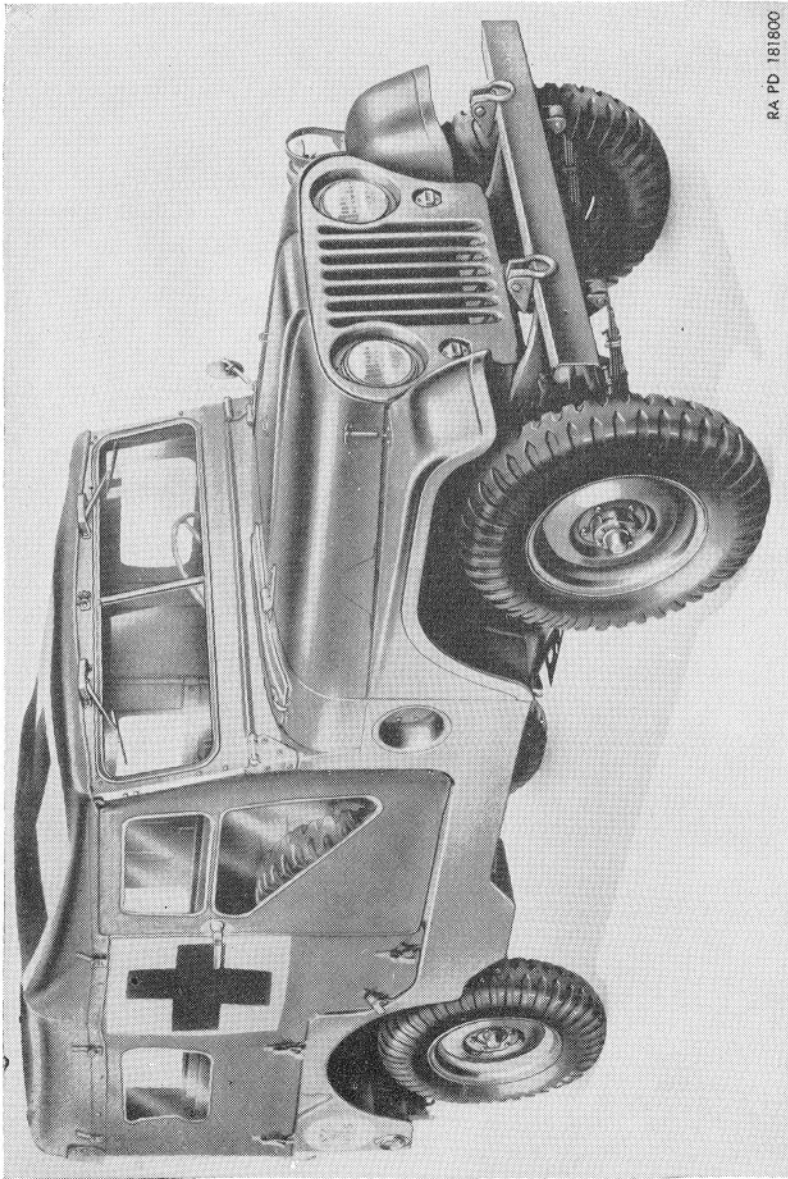
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4.1 Description M170

(Added)

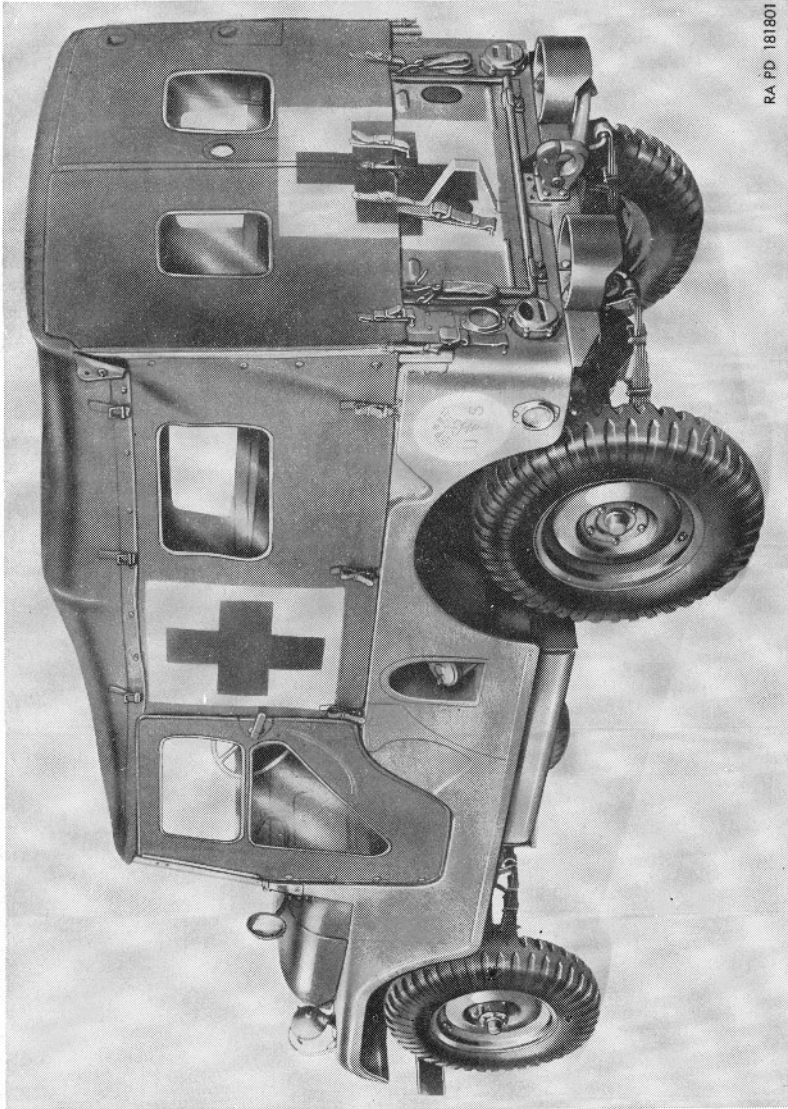
a. The front line ambulance M170 can be distinguished from the utility truck M38A1 by its longer body and frame, designed for use as an ambulance. The longer wheel base and body of the M170 provides accommodation for three litters. The litter carriers can be removed to convert the vehicle to a personnel carrier, accommodating six ambulatory patients in addition to the driver.

b. The tailgate of the ambulance can be lowered to facilitate the loading of the litters. The spare wheel is located inside the ambulance at the right rear of the front passenger seat.



RA PD 181800

Figure 3.1. (Added) 1/4-Ton 4 x 4 front line ambulance M170—right front view.



RA PD 181801

Figure 3.2 (Added) 1/4-Ton 4 x 4 front line ambulance M170—left rear view.

c. The ambulance is equipped with lower rate springs and shock absorbers for easier riding. The hand brake handle is installed in such a manner as to avoid interference with the lower litter. Additional accessories included with the ambulance consist of crash pads and an interior emergency light.

5. Power Train

(fig. 5)

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g. (Added) *Stabilizer Bar Assemblies M170* (fig. 40.1). Stabilizer bar assemblies are installed at the front and rear of the vehicle. The bracket of the front stabilizer bar assembly is mounted to the frame side rail. The bracket of the rear stabilizer bar assembly is mounted to the stabilizer bracket-to-frame bracket. The stabilizer bracket-to-frame bracket is mounted to the frame side rail. Stabilizer bar links connect the bar to a shaft on the U-bolt plates on the springs. The bars help to eliminate body sway and lean when the vehicle is in motion.

6. Body M38A1

(fig. 158)

* * * * *

6.1. Body M170

(fig. 158.1)

(Added)

a. *General.* The body is an all steel, open-type, of seamed and welded construction. The body is equipped with a driver's seat, front passenger seat, and two rear seats for ambulatory patients or passengers, tool compartment, two medical supplies stowage compartments, battery stowage box, and bows for the installation of a top cover, side curtains, and doors. A well in front of the right wheel house provides for mounting the spare wheel and tire inside the body. A two-piece, folding-type windshield, with two windshield wiper vacuum motors, is also a part of the body. The formed sheetmetal hood and front fenders are removable. Access to the rear of the engine compartment, transmission, transfer, master cylinder, and steering gear is provided by removable front floor pan covers and access plates. Reflex reflectors are bolted to the rear and sides of the body.

b. *Ambulance Equipment.*

- (1) *Litter racks.* The lower litter rack is located on the floor on the right side of the body. The upper litter rack is a removable type suspended by a hanger, supports, and retainers above the right wheel house. An auxiliary litter can be mounted above the left wheel house and tailgate. An eye on the right side of the driver's seat, a bracket left of the

driver's seat, and two brackets on the tail gate support the litter. Two holddown straps are provided to tie down the rear of the auxiliary litter.

- (2) *Seats and crash pads.* The vehicle is equipped with a driver's seat, a front passenger seat, and four wheel house cushions which serve as seats for rear passengers. The rear of the driver's seat is equipped with a crash pad and cover for the protection of the patient's head when the auxiliary litter is being used. The front passenger seat is designed to be used either as a passenger seat or, in crash pad arrangement, as a protection for patients when the lower and upper litter racks are in use.
- (3) *Tailgate.* A tailgate is provided for ease of loading patients. Two holes in the tailgate permit the handles of the litter on the lower litter rack to protrude outside the vehicle when the tailgate is in raised position.
- (4) *Medical supplies stowage compartments.* Two medical supplies stowage compartments are provided; one in the rear of the right wheelhouse and the other in the front of the left wheelhouse.

7. Frame M38A1

(fig. 178)

* * * * *

7.1. Frame M170

(Added)

The frame of the M170 is constructed of two heavy channel steel side rails and five cross members. The side rails and cross members are reinforced with welded plates. Two rear reinforcements of a V-shape design are welded to the side rails and rear cross member. All cross members, except the engine rear support cross member, are welded to the side rails. Stabilizer bar assemblies are mounted on the frame at the front and the rear of the vehicle to reduce swaying. Two front lifting shackles and a bumper bar are mounted on the front of the frame. A towing pintle, two rear lifting shackles, and two bumperettes are mounted on the rear of the frame. Brackets and supports provide mounts for the engine, body, shock absorbers, springs, and stabilizer bar assemblies.

8. Engine, Clutch, and Electrical System

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c. *Electrical System M38A1.*

* * * * *

d. (Added) *Electrical System M170.* The 12-volt lead and acid-type batteries, connected in series, supply 24-volts for operating the

electrical components of the vehicle. All components of the electrical system are waterproofed for operation while completely submerged. Two headlights, a blackout driving light, and two signal blackout marker and service parking lights are installed on the front of the vehicle. The blackout tail and stoplight and the service tail and stoplight are located at the rear of the vehicle. An emergency reel lamp is mounted on the body of the front line ambulance at the rear of the driver's seat. Voltage can be obtained at the emergency reel lamp switch only when any one of the switch levers of the light switch is in ON position.

9. Data M38A1

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9.1. Data M170

(Added)

Refer to list below for tabular data pertaining to general characteristics and performance of the vehicle, and major components. TM 9-8015-1 contains descriptive information and tabular data pertaining to the engine and clutch. For detailed information and tabular data pertaining to components covered in this manual refer to the following paragraphs:

	Paragraph
Body.....	216. 1
Frame.....	245. 1
Front axle assembly.....	146
Propeller shafts.....	141
Rear axle assembly.....	169
Shock absorbers.....	195
Springs.....	195
Steering system.....	201
Transfer.....	110
Transmission.....	81
Universal.....	141

35. Trouble Shooting Before Removal or Operation

* * * * *

b. Inspect the Vehicle for Sagging. See if the vehicle sags to one side. Sagging of the vehicle may be caused by one of the following faults:

* * * * *

(3) *Broken spring shackle M38A1.* Replace shackle (ch. 4).

(3.1) (Added) *Broken spring shackle M170.* Replace shackle (par. 62.1 c).

* * * * *

c. *Inspect the Vehicle for High Setting on One Side M38A1.* If the vehicle * * * installation. Check and correct as necessary (par. 62).

c.1. (Added) *Inspect the Vehicle for High Setting on One Side M170.* If the vehicle sits high on one side, the spring assembly may have shifted on the axle assembly. Correct as necessary. Be sure U bolts are securely tightened. Check stabilizer bar links for looseness or breakage, and correct as needed (par. 57.1).

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39. Troubleshooting Before Removal or Operation

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b. *Inspect for Abnormal Wear of Front Tires.* Excessive or abnormal wear of the front tires can be caused by one of the following:

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(4) *Front springs loose, shifted, or broken M38A1.* Examine springs for proper mounting and damage. Correct malfunction as necessary (pars. 197 and 198).

(5) (Added) *Front Springs Loose, Shifted, or Broken M170.* Examine springs for proper mounting and damage. Correct malfunction as necessary (par. 62.1c).

c. *Inspect for Abnormal Wear of Rear Tires.*

* * * * *

(3) *Rear springs shifted, loose, or broken M38A1.*

* * * * *

(4) (Added) *Rear springs shifted, loose, or broken M170.* Check springs for proper mounting and damage. Repair broken or damaged parts (par. 62.1c).

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41. General

a. This section contains information for the guidance of personnel performing major rebuild work on the 1/4-ton 4 x 4 utility truck M38A1 and the 1/4-ton 4 x 4 front line ambulance M170. It provides an * * * must be done.

* * * * *

44. Remove Batteries

(fig. 13)

* * * * *

a.1. (Added) *Unclamp and Remove the Cover (fig. 13.1) on the M170.*

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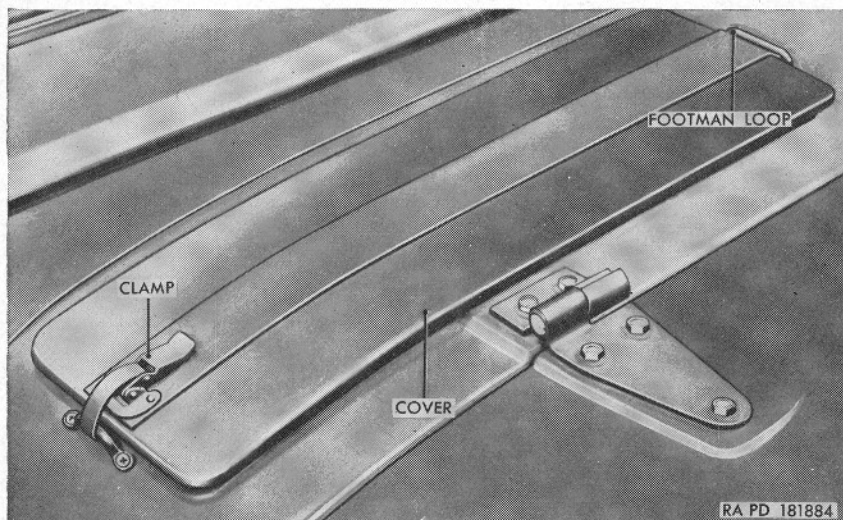


Figure 13.1. (Added) Batteries location—batteries cover installed M170.

45. Remove Spare Wheel and Tire Assembly M38A1 (fig. 14)

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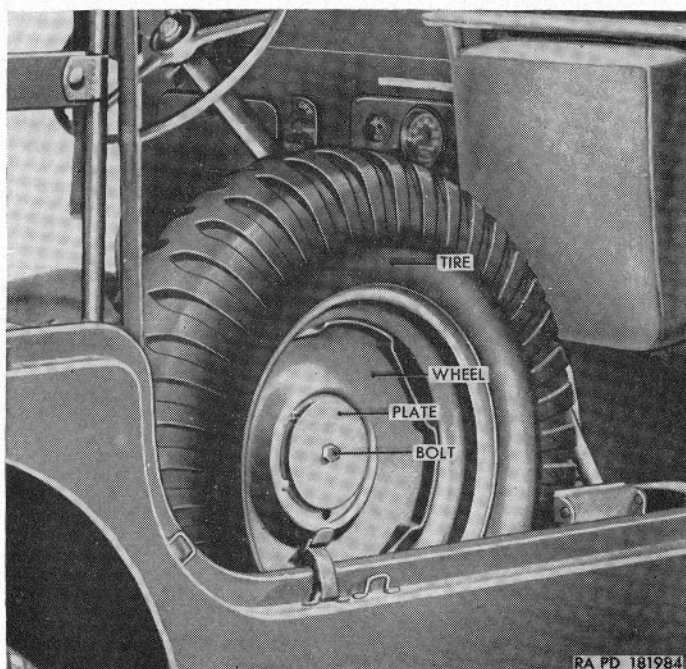


Figure 14.1. (Added) Spare wheel and tire assembly M170—installed.

45.1. Remove Spare Wheel and Tire Assembly M170

(fig. 14.1)

(Added)

Remove the bolt and plate securing the spare wheel and tire to the spare wheel support bracket (fig. 162.1), and remove spare wheel and tire.

46. Remove Fender M38A1

(fig. 15)

* * * * *

46.1. Remove Fender M170

(Added)

Follow procedure in paragraph 46 except *a* (6).

47. Remove Radiator Guard Assembly M38A1

(fig. 16)

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47.1. Remove Radiator Guard Assembly M170

(Added)

a. Remove two bolts from *J* nuts (fig. 16.1) securing radiator to guard panel on each side of radiator.

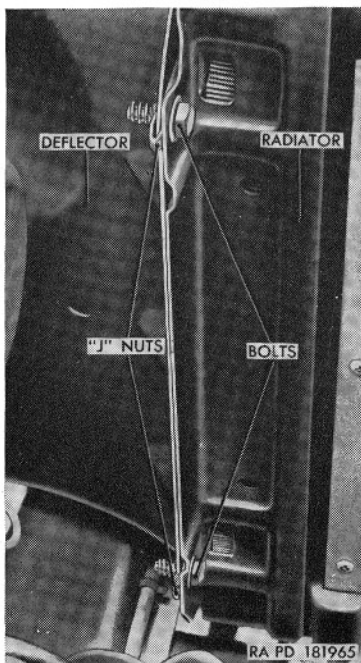


Figure 16.1. (Added) Radiator to guard panel *J* nuts M170—installed.

- b. Loosen nuts and slide tie rod (fig. 16.2) out of slot in radiator guard and off bolt and flat washer (fig. 16.3) at front bottom of guard.
- c. Remove the three screws and flat washers securing the fender to the radiator guard.

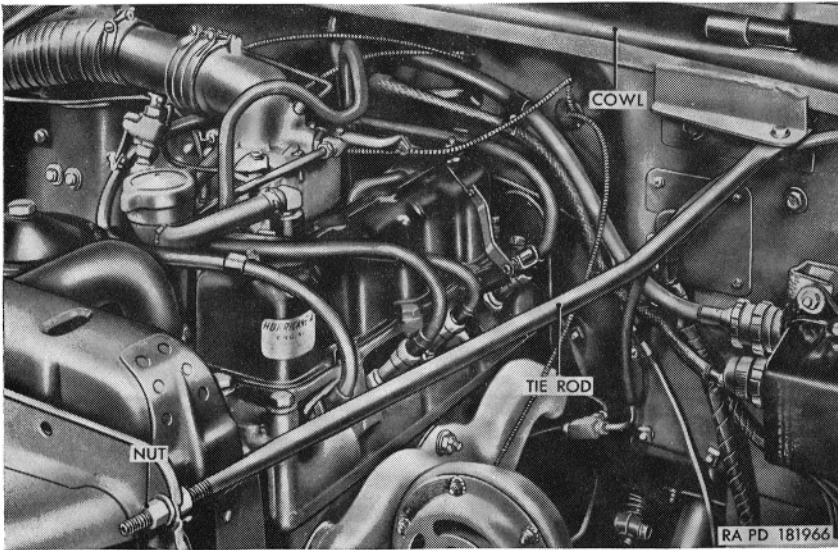
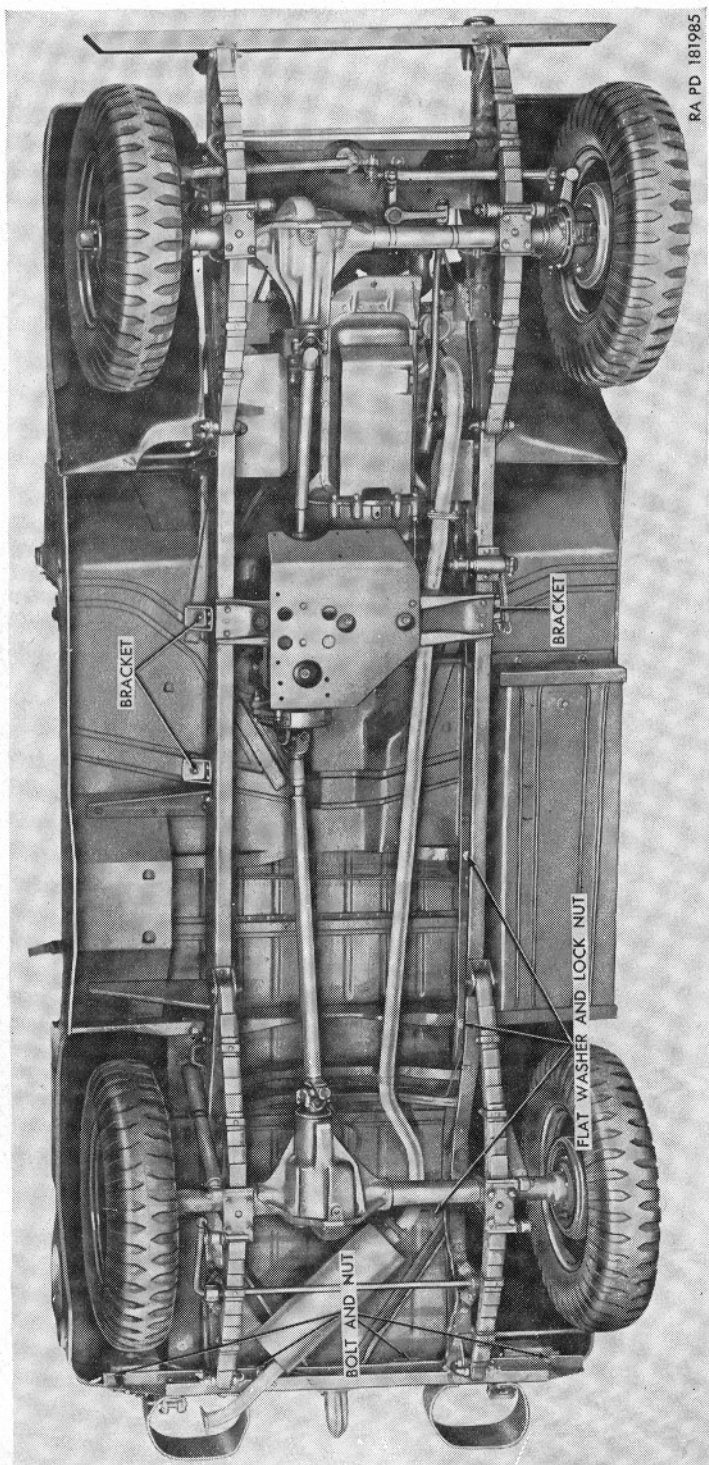


Figure 16.2. (Added) Dash-to-air deflector tie rod M170—installed—left side.



Figure 16.3. (Added) Radiator guard and deflector M170.



RA PD 181985

Figure 26.1. (Added) Under side of body—showing hold-down brackets and disconnect points M170.

d. Disconnect the headlight and blackout marker and parking light cables (C, fig. 15) at the left side of the vehicle.

48. Remove Body From Frame M38A1

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48.1. Remove Body From Frame M170

(Added)

a. *Make Disconnects at Right Side of Engine.* Refer to paragraph 48a.

b. *Make Disconnects at Left Side of Engine.* Refer to paragraph 48b.

c. *Make Disconnects Inside of Driver's Compartment.* Refer to paragraph 48c.

d. *Disconnect Body from Frame M170.* Refer to figure 26.1 for general location of body hold-down brackets and other disconnect points at bottom of body.

(1) *Disconnect points right side.*

(a) Remove the locknuts and flat washers from the bolts in the brackets (fig. 26.2). Pull the bolts with flat washers out of the body and brackets.

Note. The bolts are accessible from the right side of the driver's compartment and the tool box, respectively.

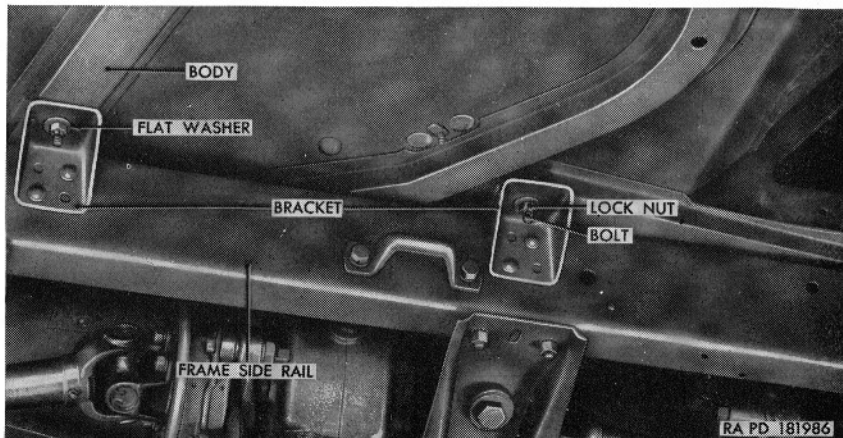


Figure 26.2. (Added) Body hold-down brackets M170—right side.

(b) Remove three locknuts and flat washers from the bolts (fig. 26.3) securing the body to the frame side rail and remove the bolts with flat washers.

(c) Remove four lockwasher bolts from the front and rear spare wheel well-to-frame side rail brackets (fig. 26.4).

(2) *Disconnect points left side.*

(a) Remove the locknut (fig. 26.5) and flat washer from the bolt in the bracket and remove the bolt with flat washer.

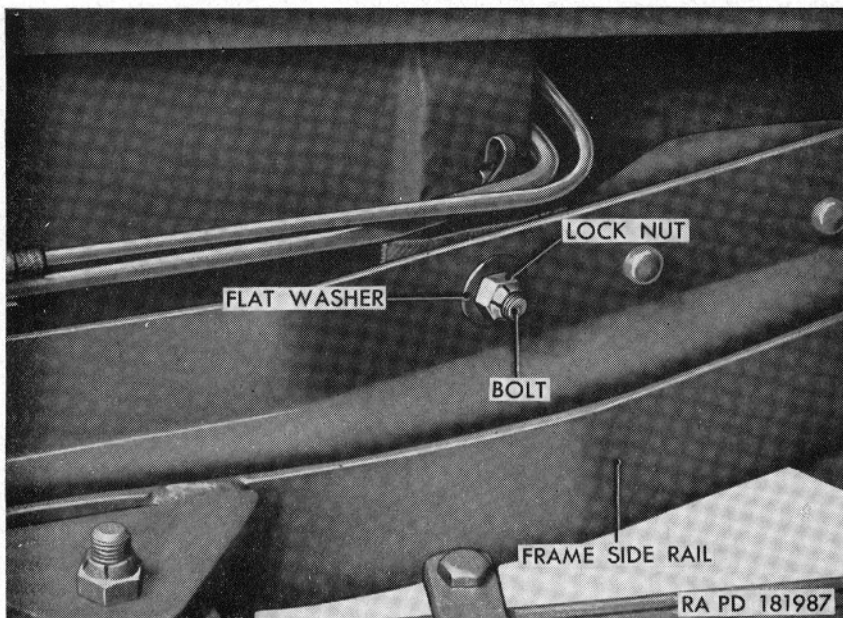


Figure 26.3. (Added) Body hold-down bolts M170—frame side rail.

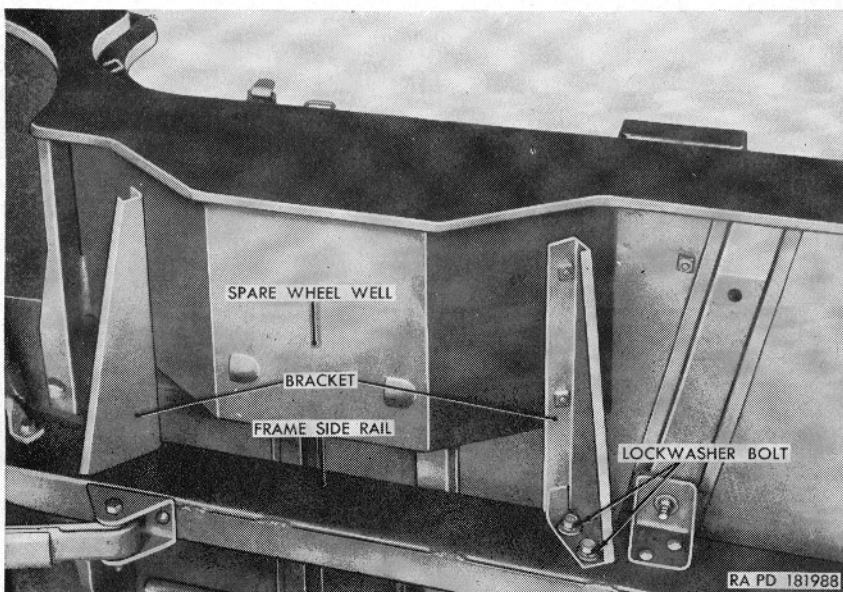


Figure 26.4. (Added) Spare wheel well-to-frame side rail brackets M170.

- (b) Remove four locknuts and flat washers (fig. 26.3) from the bolts securing the body to the frame side rail and remove the bolts with flat washers.

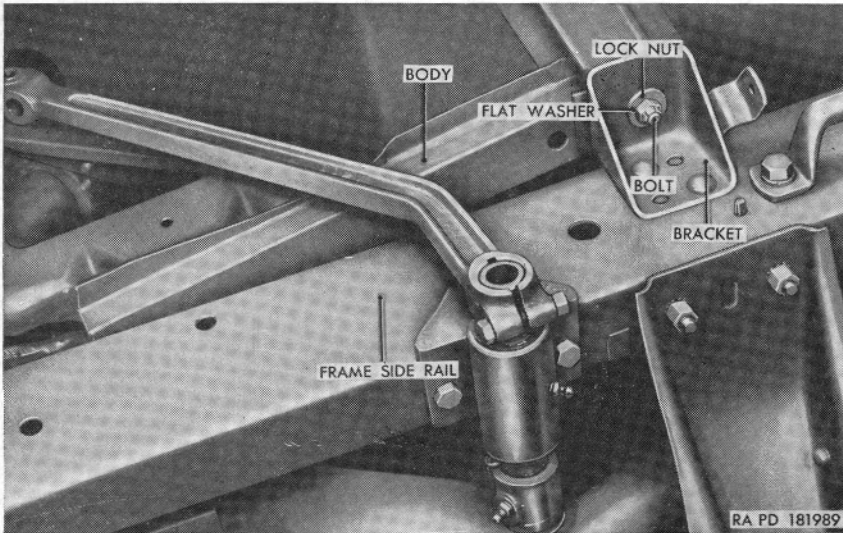


Figure 26.5. (Added) Body hold-down bracket M170—left side.

- (3) *Disconnect points frame, rear cross member.* Remove four lock nuts and flat washers from the bolts securing the body to the frame rear cross member and remove the bolts with flat washers.
- (4) *Disconnect electrical cables* (fig. 26.6).
 - (a) *Blackout tail and stoplight (right side).* Disconnect the two blackout tail and stoplight cables at the connectors under the body. Remove the cables from the clips on the mounting bracket.

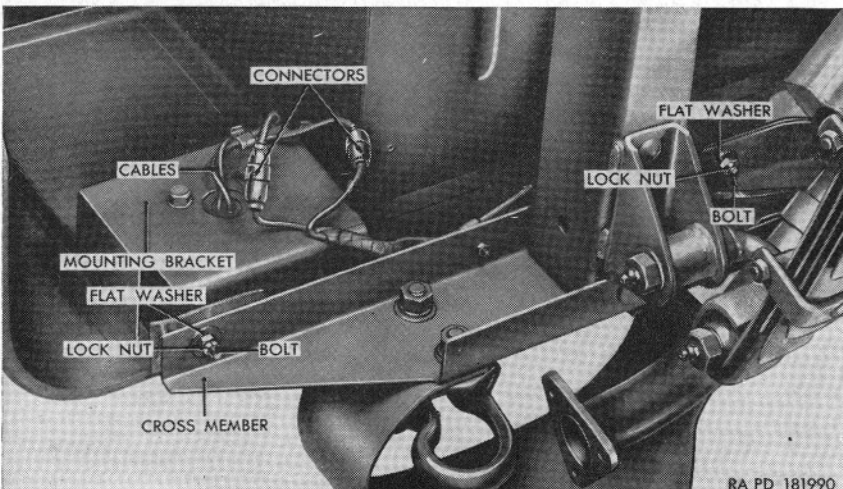


Figure 26.6. (Added) Body hold-down bolts rear cross member and blackout tail and stoplight cables M170.

(b) *Service tail and stoplight (left side).*

1. Raise the wheelhouse cushion (fig. 158.1) at the left rear side and remove the two lockwasher screws from the wheelhouse.
2. Remove the two lockwasher screws from the inner panel of the wheelhouse (fig. 158.1) from the inside of the body.
3. Remove the lockwasher screw from the bracket on the outer edge of the taillight and trailer connection guard under the wheelhouse and remove the guard.
4. Disconnect the three cables at the connectors for the service tail and stoplight (fig. 26.7). Remove the bolt and nut securing each trailer receptacle cable to the body.

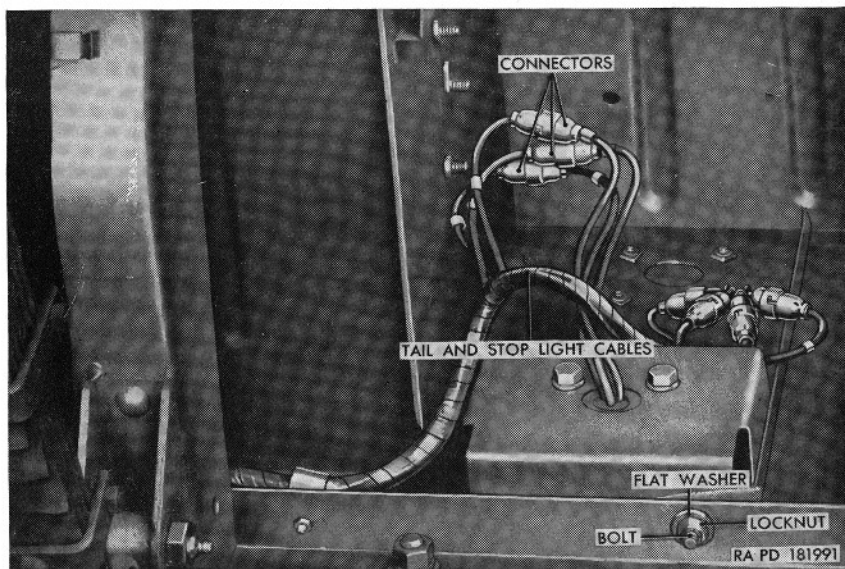


Figure 26.7. (Added) Body hold-down bolts rear cross member, service tail and stoplight, and trailer electrical coupling cables M170.

(5) *Make disconnects under body.*

- (a) Remove the tension spring (fig. 26.8) from the skid plate and the cotter pin through the hand brake cable.
- (b) Remove the cotter pin and clevis pin from the yoke of the hand brake cable and the hand brake lever.
- (c) Remove the lockwasher screw securing the hand brake cable to the bracket on the rear of the transfer.
- (d) Disconnect the tee-to-elbow fuel line (fig. 26.9) at the elbow and tie line down to the propeller shaft.

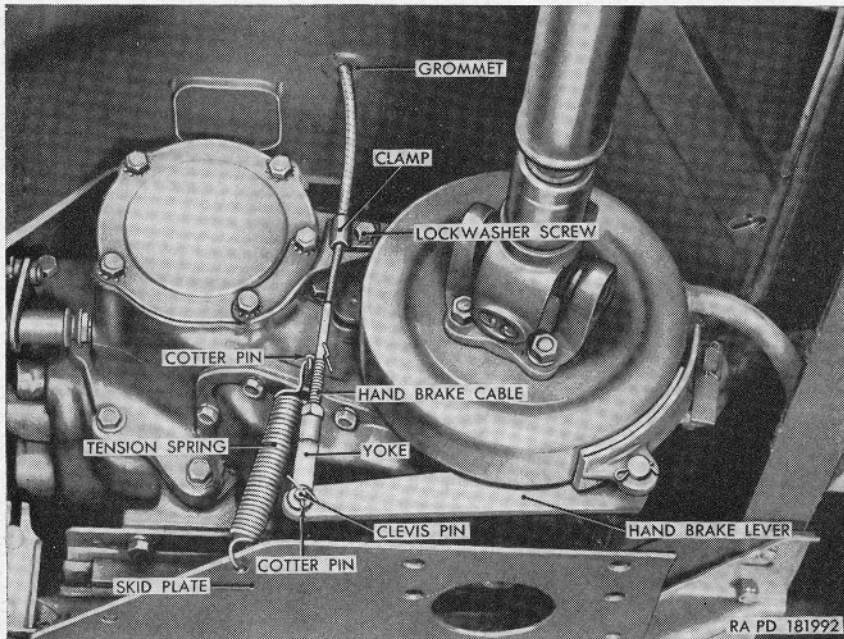


Figure 26.8. (Added) Disconnect points under body M170.

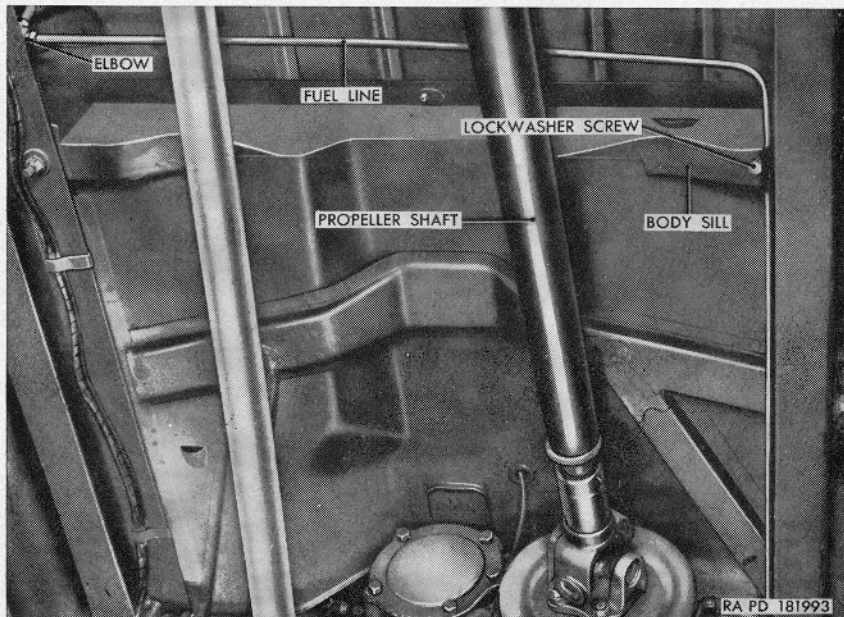
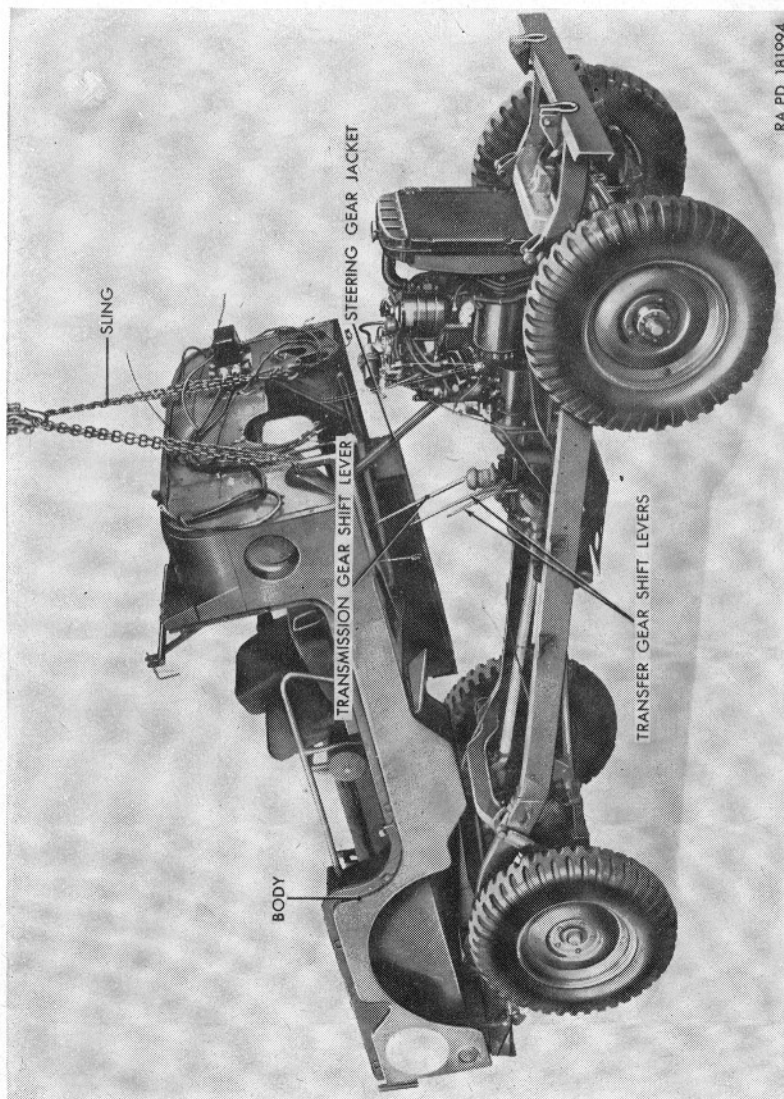
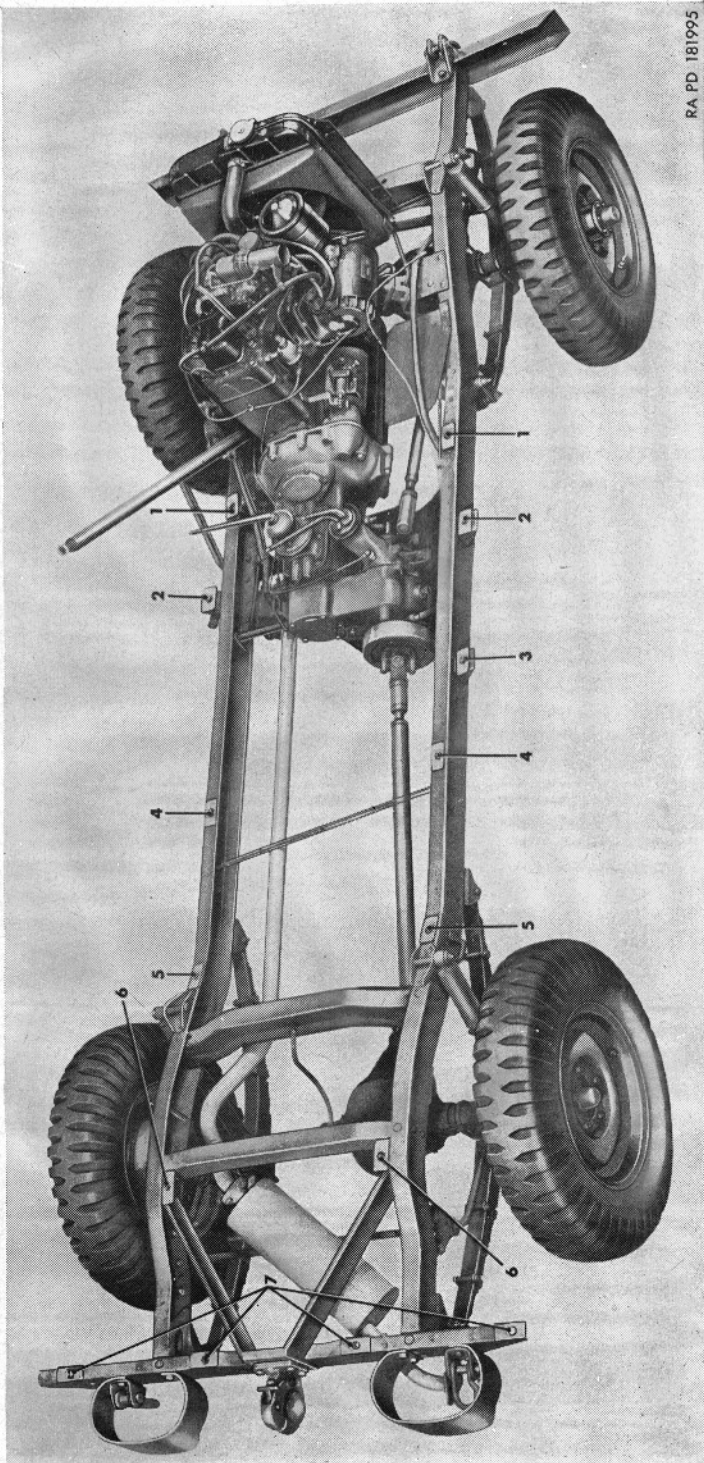


Figure 26.9. (Added) Fuel line disconnect point under body M170.



RA PD 181994

Figure 26.10. (Added) Front of body lifted from Frame M170.



RA PD 181995

Figure 26.11. (Added) Body sill liner positions and hold-down location points M170.

- (6) *Lift body from frame.* Attach a suitable sling to dash panel as shown in figure 26.10. Raise front end of body until opening in front floor panel clears transmission gear shift lever, transfer gear shift levers, and steering gear jacket. Have two men lift rear of body while another pushes chassis out from under body. When chassis is clear of body, lower rear end of body to floor or suitable support. Then lower front end of body. Remove the nine body mounting bracket shims and six body mounting cushions (fig. 26.11).

49. Remove Generator Regulator Assembly M38A1 (fig. 27)

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49.1. Remove Generator Regulator Assembly M170 (fig. 27.1) (Added)

Remove four lockwasher screws securing the generator regulator and mounting brackets to the dash panel and remove the regulator and brackets from the dash panel.

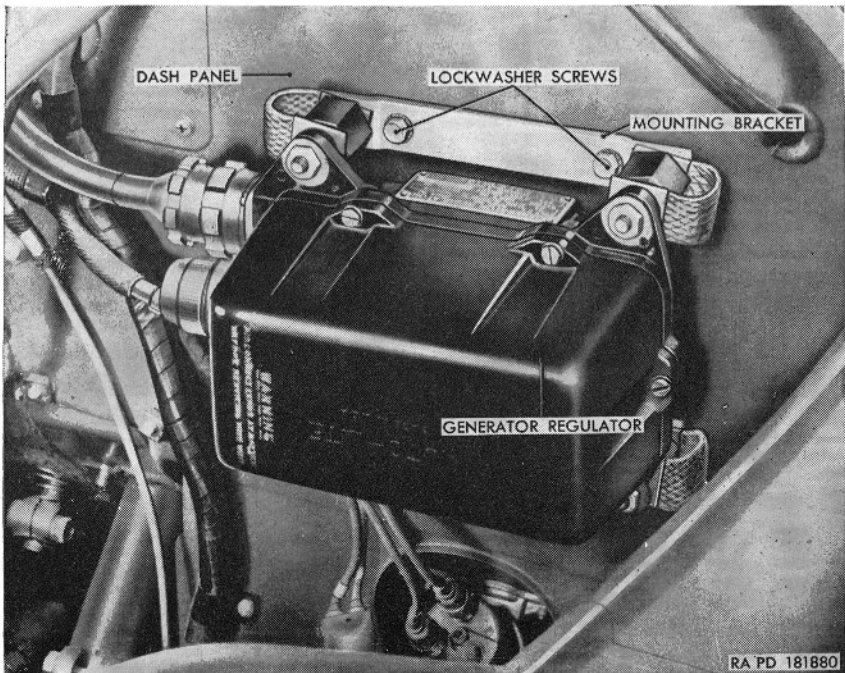


Figure 27.1. (Added) Generator regulator assembly M170—installed.

57.1. Remove Stabilizer Bars, Brackets, and Links M170 (Added)

Note. The key letters noted in parentheses are in figure 40.1.

a. Bar (Rear).

- (1) Remove the cotter pin (S) and nut (T) at the upper end of the links (H and P) on the right and the left side of the vehicle.
- (2) Remove the cup shaped washer (R) and the link grommet (Q) from the links (H and P).
- (3) Swing the stabilizer bar (D) up and off the links and remove the grommet (F) and cup shaped washer (G) from the links.
- (4) Remove the four nuts (W), lockwashers, and bolts (V) securing the bracket (U) of the bar assembly to the bracket-to-frame bracket (E), and remove the bar assembly from the vehicle.

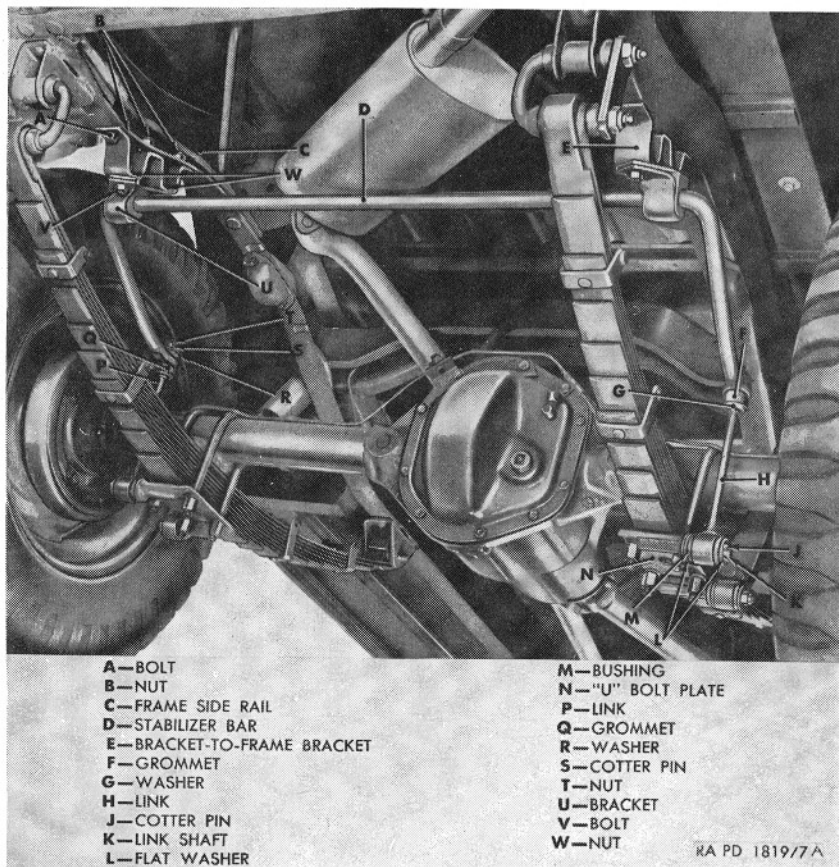


Figure 40.1 Stabilizer bar, brackets, and link M170—rear.

b. *Frame Bracket (Rear)*. Remove the six nuts (B), lockwashers, and bolts (A) securing the bracket-to-frame brackets (E) to the frame side rail (C), and remove the brackets from the vehicle.

c. *Links*. Remove the cotter pin (J) and one flat washer (L) from the link shaft (K) of the U-bolt plate (N), and slide the link (H) with the bushing (M) off the link shaft (K). Remove other flat washer (L).

d. *Bar (Front)*. The procedure for removing the front stabilizer bar is the same as that for removing the rear (*a* above), except that the brackets of the bar are mounted directly to the frame side rail.

58.1. Remove Front and Rear Springs and Axle Assemblies M170

(Added)

a. *Spring Shackles Removal* (fig. 41.1).

- (1) Remove the lock nut and the flat washer securing the lower end of the shock absorber (fig. 40) to the U-bolt plate. Pull the lower end of the shock absorber and the two mounting pin bushings off the shaft of the U-bolt plate. Remove the two bushings out of the eye of the shock absorber.
- (2) Disconnect stabilizer link from stabilizer bar (par. 57.1 *a* (1) and (2)).
- (3) Raise the frame of the vehicle until both tires clear the ground. Using safety stands or suitable blocking, support the weight of the vehicle. Place a jack under the axle hous-

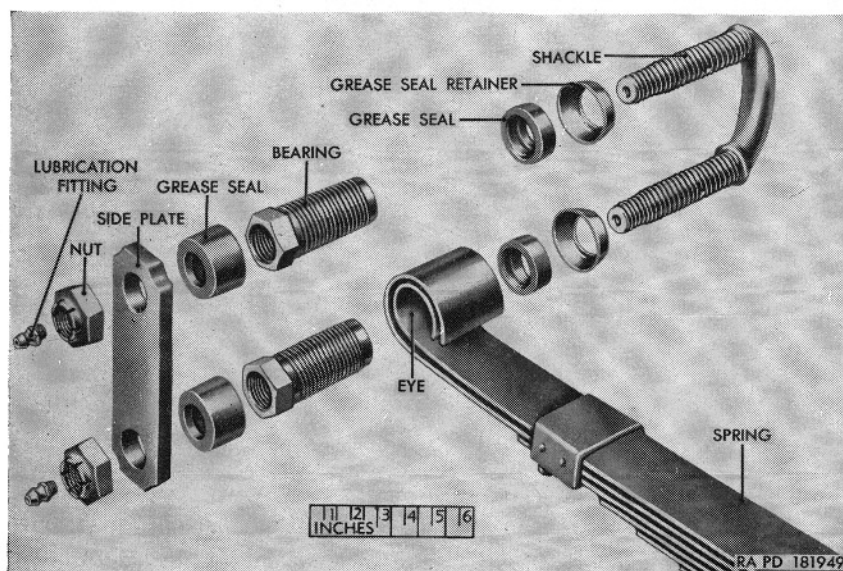


Figure 41.1. (Added) Spring shackle and spring shackle end of spring M170—exploded view.

ing and adjust the height of the jacks as necessary to take the tension off the spring.

- (4) Remove the nuts securing the side plate to the spring shackle and remove the plate and grease seals. Unscrew and remove the bushing-type shackle bearing from the shackle, spring eye, and frame side rail.
- (5) Pull the spring shackle, with the grease seals and grease seal retainers, from the eye of the spring assembly and frame side rail (for front spring) or spring bracket (for rear spring).
- (6) Slip the grease seals and the grease seal retainers off the shackle. Remove the lubrication fittings from the shackle.

b. Pivot Bolts Removal (fig. 41.2). Unscrew the safety nut from the pivot bolt. Withdraw the bolt from the spring bracket and bushing-type eye bearing in the spring eye.

Note. It may be necessary to drive the bolt out of the eye bearing with a suitable drift pin.

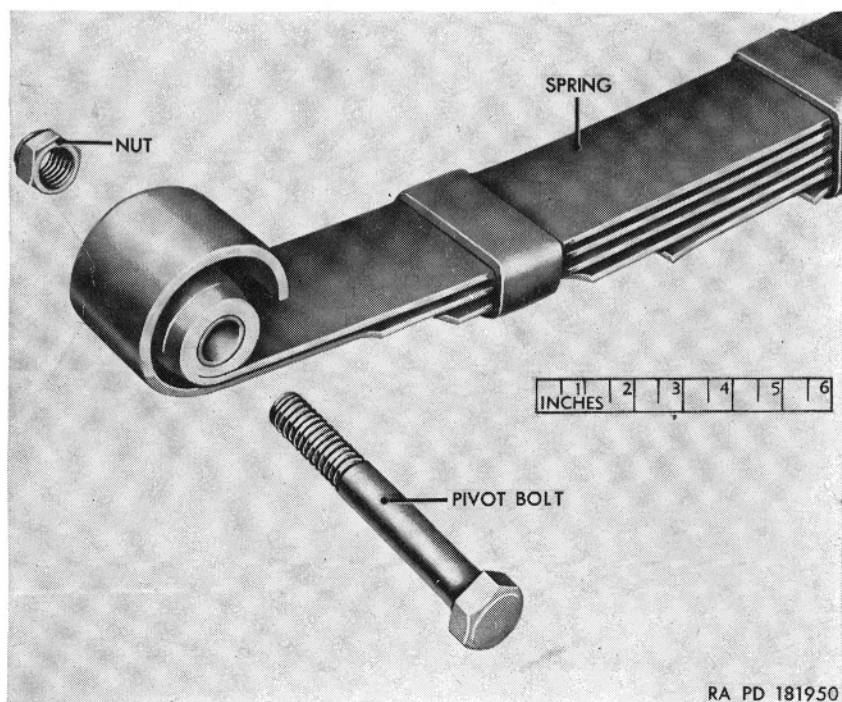


Figure 41.2. (Added) Pivot bolt and pivot bolt end of spring M170—Exploded view.

c. Steering Bellcrank Disconnection. Remove the cotter pin, slotted nut (H, fig. 41), and tie rods from the steering bellcrank assembly (J, fig. 41) when removing the front assemblies.

d. Spring and Axle Assemblies Removal from Vehicle. Remove the jack from the axle assembly and remove the spring, axle, brake, and drum and hub assemblies from the frame.

62. Install Front and Rear Springs and Axle Assemblies M38A1 (fig. 41)

* * * * *

62.1. Install Front and Rear Springs and Axle Assemblies M170 (Added)

a. General. Support the frame at a suitable height to offer working space for installation of spring and axle assemblies. Position the spring and axle assemblies under frame and support it on a jack.

b. Pivot Bolts Installation (fig. 41.2). Raise the axle and spring assemblies sufficiently to position the pivot bolt end of spring into pivot bolt bracket. Aline the hole in the spring and the bracket and install the pivot bolt. Install the safety nut on the bolt.

c. Spring Shackle Installation (fig. 41.1).

- (1) Slip a grease seal retainer and a grease seal in the order named over each of the threaded parts of the shackle. Start the small inside diameter of the retainers on the shackle.
- (2) Insert the ends of the shackle into the inner side of the spring assembly and the inner side of the frame rail (for front spring) or the spring bracket (for rear spring), and push the shackle in until the ends are almost protruding from the spring eye and frame side rail or spring bracket.
- (3) Insert the bushing-type shackle bearings into the spring eye and frame side rail or bracket, and start the bearings onto the shackle before the bearings start threading into the eye or frame side rail or spring bracket. Take up on both bearings equally until they are tight. Back off the lower bearing about one thirty-second of an inch ($\frac{1}{3}$ of a turn).
- (4) Place a grease seal over the hex-head of each bearing. Slide the side plate over the ends of the shackle and secure with two nuts. Install the lubrication fittings in the end of the shackle.
- (5) Raise the axle assembly with the jack until the upper end of the link (H or P, fig. 40.1) between the U-bolt plate and the stabilizer bar (D, fig. 40.1) enters the hole in the end of the bar. Install a grommet (Q, fig. 40.1) and a washer (R, fig. 40.1) over the end of the link. Secure the link, grommet, and washer to the bar with a nut (T, fig. 40.1) and cotter pin (S, fig. 40.1).
- (6) Install one mounting pin bushing, with the taper facing out, on the shaft of the U-bolt plate (fig. 40). Install the lower end of the shock absorber assembly (fig. 40) on the shaft.

Install another mounting pin bushing, with the taper facing in, on the shaft. Seat the two bushings in the eye on the end of the shock absorber. Secure the shock absorber to the shaft with one $\frac{1}{2}$ -inch ID flat washer and a $\frac{7}{16}$ -inch lock nut. Tighten until a slight bulge is noted in the bushings.

- (7) Remove the safety stands, or blocking, and lower the vehicle to the ground.

63.1. Install Stabilizer Links, Brackets, and Bars M170

(Added)

Note. The key letters noted in parentheses are in figure 40.1.

a. Links. Install one flat washer (L) on the link shaft (K). Install the link (H or P) with the bushing (M) over the link shaft (K) of the U-bolt plate (N). Install other flat washer (L) over the link shaft and secure with a $\frac{1}{8}$ x 1 cotter pin (J).

b. Frame Bracket (Rear). Position the bracket-to-frame brackets (E) on the frame side rails (C). Install three $\frac{7}{16}$ x 1 bolt (A) through each bracket and the side rail and secure with a $\frac{7}{16}$ -inch lock washer and $\frac{7}{16}$ -inch nut (B).

c. Bar (Rear).

- (1) Position the brackets (U) of the stabilizer bar (D) on the bracket-to-frame brackets (E), and install two $\frac{7}{16}$ x 1 bolts through the brackets on each side. Install a $\frac{7}{16}$ -inch lock washer and $\frac{7}{16}$ -inch nut on the bolts (V) securing the stabilizer bar (D) to the frame brackets.
- (2) Install a cup shaped washer (G) and a grommet (F) over the link (H or P) on each side.
- (3) Swing the bar down and slide the eyelet on each end of the bar over the links.
- (4) Install a grommet (Q) and cup shaped washer (R) over the end of each link.
- (5) Install a $\frac{3}{8}$ -inch nut (T) on each link and tighten until a slight bulge appears in the grommets and the slot in the nut is alined with the hole in the link; and install a $\frac{3}{32}$ x 1 cotter pin (S).

d. Bar (Front). The procedure for installing the front stabilizer bar is the same as the rear (*c* above) except that the brackets of the bar are mounted directly to the frame side rail.

71.1. Install Generator Regulator Assembly M170

(fig. 27.1)

(Added)

Position the generator regulator with the generator regulator mounting brackets on the dash panel and secure with four $\frac{1}{4}$ x $\frac{3}{4}$ lockwasher screws.

72. Install Body on Frame

a. (Superseded) *Attach Sling to Body*. Attach a suitable sling to dash panel as illustrated in figures 25 and 26.10.

b. *Install Body Mounting Cushions and Mounting Bracket Shims M38A1* (fig. 26).

* * * * *
b.1. (Added) *Install Body Sill Liners M170* (fig. 26.11). Cement new body sill liners (thick) at positions 1, 3, and 5. Cement new body sill liners (thin) at positions 2, 4, 6, and 7.

c. *Install Body on Frame M38A1* (fig. 25).

* * * * *
c.1. (Added) *Position Body on Frame M170* (fig. 26.10). Raise front of body with sling. Have two men lift rear of body while another pushes chassis under body. Rest rear of body on frame and lower front end of body making sure the opening in the front floor pan cover clears the transmission gear shift lever, transfer gear shift levers, and steering gear jacket.

d. *Connect Body to Frame M38A1*.

* * * * *
d.1. (Added) *Connect Body to Frame M170* (fig. 26.11).

(1) *Install body holddown bolts right and left side.*

(a) Place a $\frac{3}{8}$ -inch flat washer over a $\frac{3}{8}$ x 2 bolt and insert the bolt through the front cover floor pan and the No. 2 location point. Install a $\frac{3}{8}$ -inch flat washer and $\frac{3}{8}$ -inch lock nut on the bolt.

(b) Place a $\frac{3}{8}$ -inch flat washer over a $\frac{3}{8}$ x 2 bolt and insert the bolt through the body and the No. 3 location point from the inside of the tool compartment. Install a $\frac{3}{8}$ -inch flat washer and $\frac{3}{8}$ -inch lock nut on the bolt.

(c) Place a $\frac{3}{8}$ -inch flat washer over a $\frac{3}{8}$ x $1\frac{1}{4}$ bolt and insert the bolt through the sill of the body and the No. 4 location point from under the vehicle. Install a $\frac{3}{8}$ -inch flat washer and $\frac{3}{8}$ -inch lock nut on the bolt.

(d) Place a $\frac{3}{8}$ -inch flat washer over a $\frac{3}{8}$ x $1\frac{1}{4}$ bolt and insert the bolt through the sill of the body and the No. 5 location point from under the vehicle. Install a $\frac{3}{8}$ -inch flat washer and $\frac{3}{8}$ -inch lock nut on the bolt.

(e) Insert a $\frac{5}{16}$ x $1\frac{1}{2}$ step bolt through the body rear floor pan and the No. 6 location point. Install a $\frac{5}{16}$ -inch flat washer and $\frac{5}{16}$ -inch lock nut on the bolt.

(2) *Install body holddown bolts in rear cross member.* Place a $\frac{5}{16}$ -inch flat washer over a $\frac{5}{16}$ x $\frac{7}{8}$ bolt and insert the bolt through the body sill and the No. 7 location point from under the vehicle. Install a $\frac{5}{16}$ -inch flat washer and $\frac{5}{16}$ -inch lock nut on the bolt.

(3) *Make connections under body.*

- (a) Secure the four connectors of the trailer receptacle cables to the body with a bolt and nut (fig. 26.7).
- (b) Connect the three connectors of the cables for the service tail and stoplight (fig. 26.7).
- (c) Position the taillight and trailer connection guard under the wheel house and secure with a $\frac{1}{4} \times \frac{5}{8}$ lockwasher screw through the bracket on the outer edge of the guard and to the outer panel of the wheel house.
- (d) Insert and start two $\frac{1}{4} \times \frac{5}{8}$ lockwasher screws through the inner panel of the wheel house (fig. 158.1) and into the welded nuts of the guard.
- (e) Insert and start two $\frac{1}{4} \times \frac{5}{8}$ lockwasher screws through the wheel house (fig. 158.1) and into the welded nuts of the guard.
- (f) Tighten the screws.
- (g) Connect the two connectors of the blackout tail and stoplight cables at the right side of the vehicle (fig. 26.6). Place the cables under the clip on the mounting bracket.
- (h) Position the yoke of the hand brake cable on the hand brake lever (fig. 26.8), and secure with clevis pin and cotter pin.
- (i) Connect the fuel line (fig. 26.9) to the elbow. Secure the fuel line to the body sill with a clip and lockwasher screw.

* * * * *

73. Install Radiator Guard Assembly M38A1

(fig. 16)

* * * * *

73.1. Install Radiator Guard Assembly M170

(Added)

- a. Position the radiator guard assembly in front of the radiator, on the front fenders and the frame cross member.
- b. Install three $\frac{5}{16}$ -inch flat washers and $\frac{5}{16} \times \frac{7}{8}$ screws on each side of the vehicle securing the radiator guard to the front fenders.
- c. Install two bolts on each side of the radiator into the J nuts (fig. 16.1).
- d. Position the front of the two tie rods (fig. 16.2) on each side of the vehicle in the slots in the deflector. Tighten the nuts on the ends of the tie rods.
- e. Connect the headlight and the blackout marker and parking light cables (C, fig. 15).

74. Install Fenders M38A1

(fig. 15)

* * * * *

74.1. Install Fenders M170

(Added)

Follow procedure in paragraph 74 except *a*(1).

75. Install Spare Wheel and Tire Assembly M38A1

(fig. 14)

* * * * *

75.1 Install Spare Wheel and Tire Assembly M170

(fig. 14.1)

(Added)

Position the spare wheel and tire assembly in the spare wheel well on the right side of the vehicle. Install the bolt and plate securing the spare wheel to the spare wheel support bracket (fig. 162.1).

76. Install Batteries

(fig. 13)

* * * * *

h. (Added) Install cowl batteries box lid M170 (fig. 13.1). Hook the cover into the footman loop on the cowl. Lower the cover and secure with clamp.

184. Description

* * * * *

c. (Superseded) *Hand brake.* The mechanical hand brake system is independent of the hydraulic service brake system. The hand brake serves primarily as a parking brake but can also be used to slow or stop the vehicle should the service brakes fail. When the brake is applied, an inner and outer shoe (fig. 143.1) contacts a brake drum mounted on the transfer companion flange. Drag on the drum slows or prevents rotation of the flange and rear propeller shaft, to slow or stop the vehicle. The hand brake handle is at the right of the driver's seat as shown in figure 142 for the M38A1 and figure 142.1 for the M170. The hand brake handle of the M170 is mounted to avoid interference with a patient on the lower litter rack. Difference in linkage can be seen by comparing figures 143 and 143.1.

190. Disassembly M38A1

* * * * *

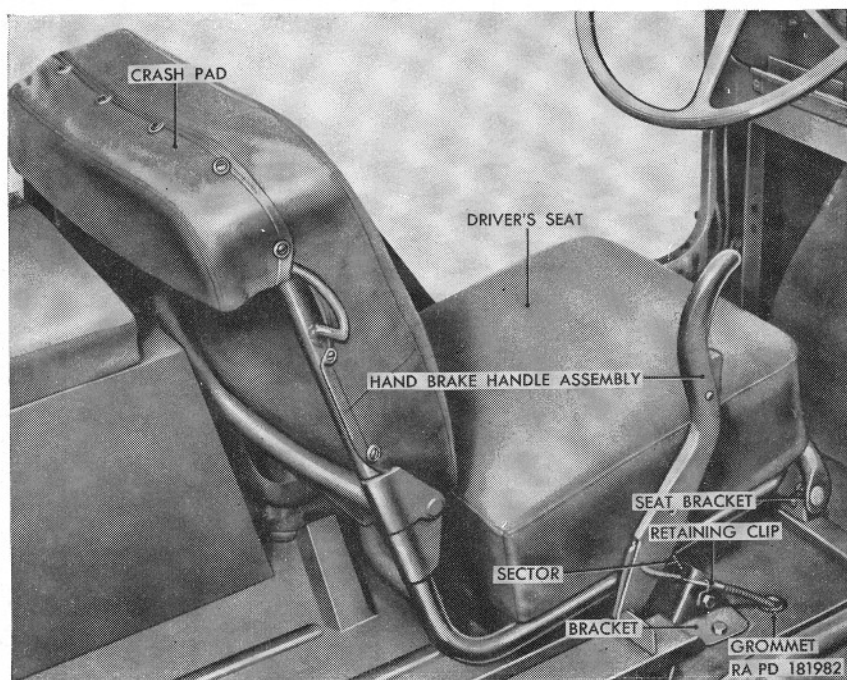


Figure 142.1. (Added) Hand Brake Handle and Driver's Seat Assemblies M170—Installed.

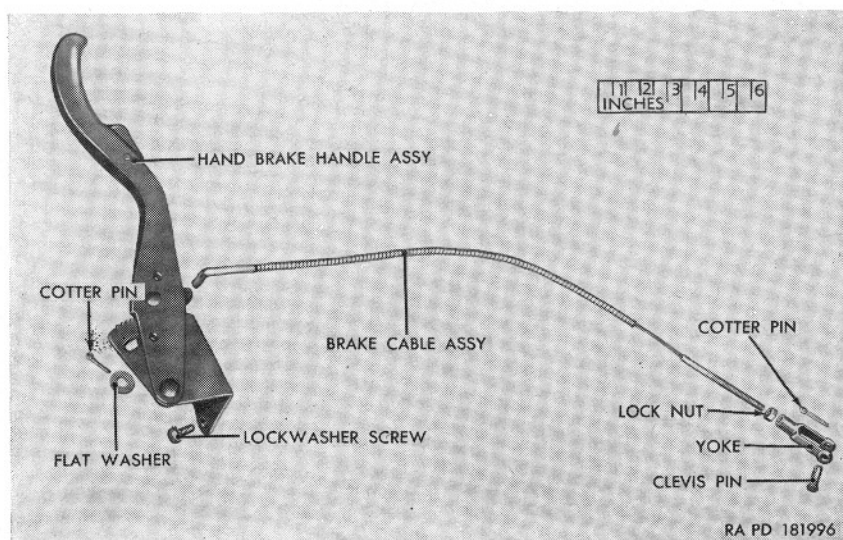


Figure 143.1. (Added) Hand Brake Assembly M170—Partially Exploded View.

190.1. Disassembly M170

(Added)

a. Remove Brake Cable Assembly.

- (1) Remove cotter pin and flat washer from cable assembly end (fig. 143.1) in driver's compartment. Remove grommet (fig. 142.1) from floor pan. Remove lockwasher screw from cable housing retaining clip (fig. 142.1). Spread clip and remove from cable housing.
- (2) Remove hand brake cable tension spring (fig. 26.8) from the the skid plate and the cotter pin in the cable from underside of vehicle. Remove cotter pin from clevis pin and remove pin from yoke and hand brake lever. Remove lockwasher screw from cable housing clamp (fig. 26.8) at rear of transfer. Remove grommet (fig. 26.8) from floor pan. Remove cable from the vehicle.

b. Remove Hand Brake Handle Assembly (fig. 142.1).

- (1) Remove the cotter pin and flat washer securing the brake cable to the hand brake handle assembly and remove the cable from the handle.
- (2) Remove the three lockwasher screws securing the sector of the brake handle assembly to the bracket on the floor pan cover and remove the assembly from the vehicle.

c. Remove Brake Drum, Operating Lever, and Inner and Outer Shoe Assemblies (fig. 143). Refer to paragraph 111 and 117 for removal procedures.

d. Disassembly. It is not necessary to disassemble the brake and brake cable assemblies unless inspection (par. 191) reveals them to be unserviceable.

- (1) *Brake cable assembly.* Loosen yoke lock nut (fig. 143.1). Unscrew the yoke from the cable assembly.
- (2) *Hand brake handle assembly.* Procedure for disassembly of the hand brake handle assembly M170 is the same as that for the M38A1 (par. 190d (2)).

191. Inspection and Repair

a. Inspection.

* * * * *

- (6) *Brake rod and retracting spring M38A1* (fig. 143). Replace a broken * * * its intended manner.
- (6.1) (Added) *Brake cable assembly M170* (fig. 143.1). Replace a broken, frayed, or kinked brake cable assembly.
- (7) *Rod adjusting yoke M38A1* (fig. 143). Replace a broken or otherwise damaged rod adjusting yoke (H).

(7.1) (Added) *Cable adjusting yoke M170* (fig. 143.1). Replace a broken or otherwise damaged cable adjusting yoke.

* * * * *

192. Assembly

* * * * *

b.1. (Added) *Assemble Brake Cable Assembly M170* (fig. 143.1). Install yoke lock nut on threaded end of cable.

* * * * *

c.1. (Added) *Install Hand Brake Handle Assembly M170* (fig. 142.1). Position the sector of the brake handle assembly on the bracket on the floor pan cover. Install the three lockwasher screws securing the brake handle assembly to the bracket.

* * * * *

d.1. (Added) *Install Brake Cable Assembly M170*.

- (1) Push brake cable up through holes in floor pans (fig. 26.8) with the yoke end down. Install retaining clip on cable housing (fig. 142.1). Position clamp (fig. 26.8) at rear of transfer and install lockwasher screw. Install clevis pin in yoke and hand brake lever (fig. 26.8) and secure with cotter pin. Install the cotter pin (fig. 26.8) in the cable assembly. Connect the tension spring to the skid plate and cotter pin in the cable. Install grommet in floor pan.
- (2) Insert the upper end of the brake cable assembly in the brake handle assembly and secure with a flat washer and cotter pin (fig. 142.1).
- (3) Insert a lockwasher screw (fig. 142.1) in the retaining clip and install the screw in the bracket.

* * * * *

194. Description

a. *Springs M38A1*.

* * * * *

a.1. (Added) *Springs M170*. Both the front and rear spring assemblies are of the semi-elliptic-type with wrapped eyes on the two top leaves. The front spring (fig. 145.1) is a 10 leaf spring and the rear spring is an 11 leaf spring. One center bolt and four rebound clips secure the spring leaves of each spring assembly. Each spring assembly is suspended lengthwise from the frame by a shackle at the rear and a pivot bolt at the front. The pivot bolts ride in bushing-type eye bearings while the shackles are mounted in internally and externally threaded bushing-type shackle bearings. U bolts and U-bolt plates secure each spring assembly to its respective axle.

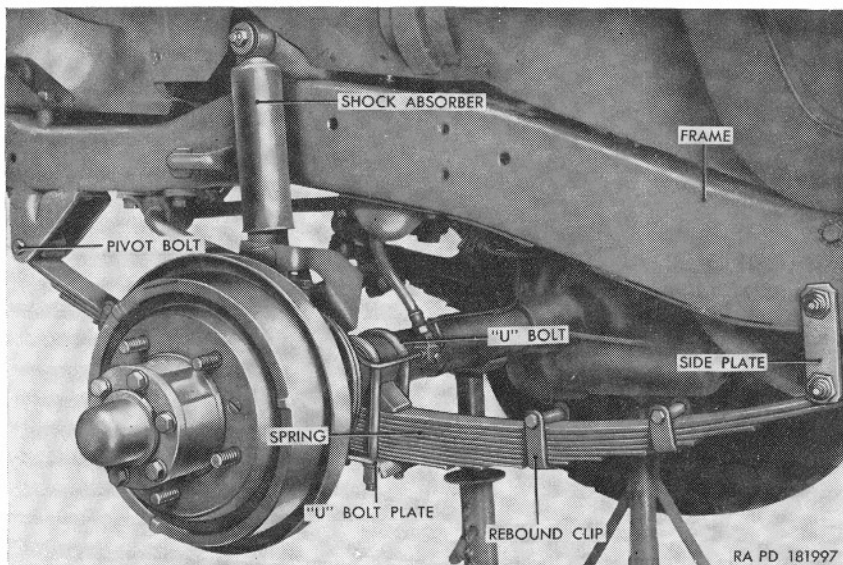


Figure 145.1. (Added) Front spring and shock absorber M170—installed.

195. Data

a. Front Springs M38A1.

* * * * *

a.1. (Added) Front Springs M170.

Manufacturer----- Mather Spring Co.
 Number of leaves----- 10
 Length (center of spring eyes, arched)----- 39½ in.
 Rebound clips----- 4

b. Rear Springs M38A1.

* * * * *

b.1. (Added) Rear Springs M170.

Manufacturer----- Mather Spring Co.
 Number of leaves----- 11
 Length (center of spring eyes, arched)----- 46 in.
 Rebound clips----- 4

c. Shock Absorbers M38A1.

* * * * *

c.1. (Added) Shock Absorbers M170.

Manufacturer----- Monroe
 Type----- double action, hydraulic
 Collapsed length :
 Front----- 11.44 in.
 Rear----- 11.94 in.
 Extended length :
 Front----- 18.44 in.
 Rear----- 19.44 in.

196. Disassembly

a. *Springs* (figs. 145 and 146).

* * * * *

- (2) *Remove rebound clips.* Remove rebound clip nut, spacer, and bolt securing each of the six rebound clips **on the M38A1 and four rebound clips on the M170.** Remove the spring leaves.

* * * * *

198. Assembly

a. *Springs* (figs. 145 and 146).

* * * * *

- (2) *Secure rebound clips.* Secure each of the six rebound clips **on the M38A1 or four rebound clips on the M170** with a rebound clip spacer, $\frac{5}{16}$ -24 NF-2 x 2½ bolt, and nut. Peen ends of rebound clip bolts.

* * * * *

215. Description

(fig. 158)

a. *General M38A1.*

* * * * *

a.1. (Added) *General M170.* The all steel, open-type body (fig. 158.1) of the ambulance is of seamed and welded construction. The body is equipped with a driver's seat (fig. 142.1), front passenger seat, and wheel house cushions (fig. 158.2), tool compartment, two medical supplies stowage compartments, battery stowage box, and bows for the installation of the top cover, side curtains, and doors. A well in front of the right wheel house provides for mounting the spare wheel and tire inside the body. A two-piece, folding-type windshield, with two windshield wiper vacuum motors, is secured to the body cowl. The formed sheetmetal hood and front fenders are removable. Access to the rear of the engine compartment, transmission, transfer, master cylinder and steering gear is provided by removable front floor pan covers and access plates. Reflex reflectors are bolted to the rear and sides of the body.

* * * * *

c. *Seat Assemblies M38A1.*

* * * * *

d. (Added) *Seat Assemblies M170.* The vehicle is equipped with a driver's seat, a front passenger seat (fig. 158.1), and four wheel house cushions (fig. 158.2) that serve as seats for rear passengers. The rear of the driver's seat is equipped with the driver's seat frame crash pad and cover (fig. 142.1).

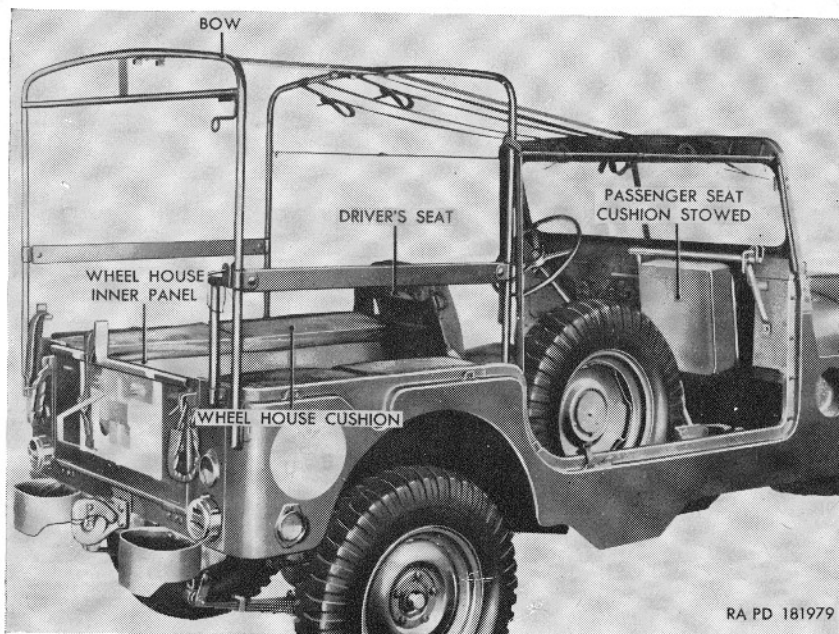


Figure 158.1. (Added) Body 1/4-ton 4 x 4 front line ambulance M170.

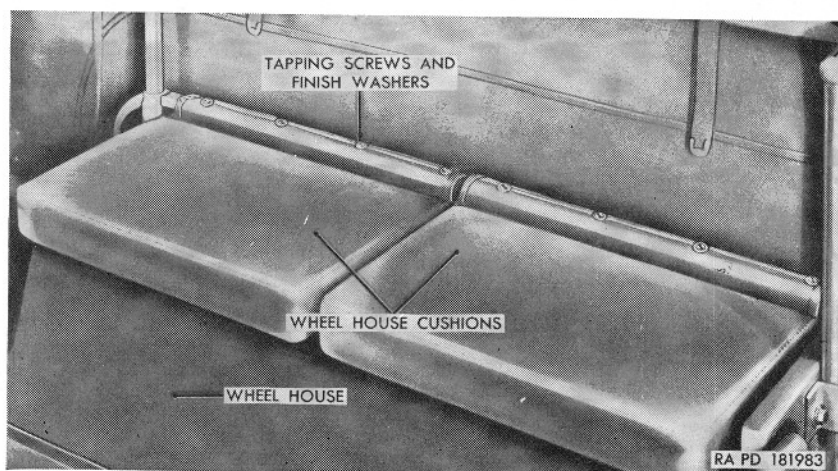


Figure 158.2. (Added) Right wheel house cushions M170—installed.

216. Data M38A1

* * * * *

216.1. Data M170

(Added)

Type----- all steel, open
Construction----- welded
Type of steel----- No. 18 gage
Width (edge of reflex reflectors)----- 60½ in.
Length (to inside of dash panel)----- 88¾ in.

217. General

* * * * *

b. Preliminary Instructions M38A1.

* * * * *

b.1. (Added) Preliminary Instruction M170. Disassembly instructions included in this chapter cover major items. Removal instructions for seat and fuel tank assemblies are covered in paragraph 220.1 for the seats, and paragraph 220.3 for the fuel tank. Refer to paragraph 48.1 for instructions relative to removal of body from vehicle. Paragraph 72 prescribes body installation instructions.

219. Remove Spare Wheel Support and Fuel Can Bracket Assemblies

a. Spare Wheel Support Bracket M38A1 (fig. 162).

* * * * *

a.1. (Added) Spare Wheel Support Bracket M170 (fig. 162.1). Remove the spare wheel and tire assembly (par. 45.1). Remove the three bolts securing the bracket to the lower floor pan cover, rear compartment floor pan cover, and medical supplies stowage compartment and remove bracket from vehicle.

220.1. Remove Seat Assemblies M170

(Added)

a. Front Seats. Tilt the seat forward until flat side of hinge pin is alined with slot in seat bracket (fig. 142.1) on floor pan cover, and lift seat out of bracket.

b. Wheel House Seats. Remove the four oval-head tapping screws and finish washers (fig. 158.2) that secure each of the two right wheel house cushions to the top of the right wheel house seat and remove cushions from within vehicle. Remove the five oval-head tapping screws and finish washers that secure each of the two left wheel house cushions to the top of the left wheel house seat and remove the cushions from the vehicle.

220.2. Remove Hand Brake Handle Assembly M170

(Added)

Refer to paragraph 190.1*b*.

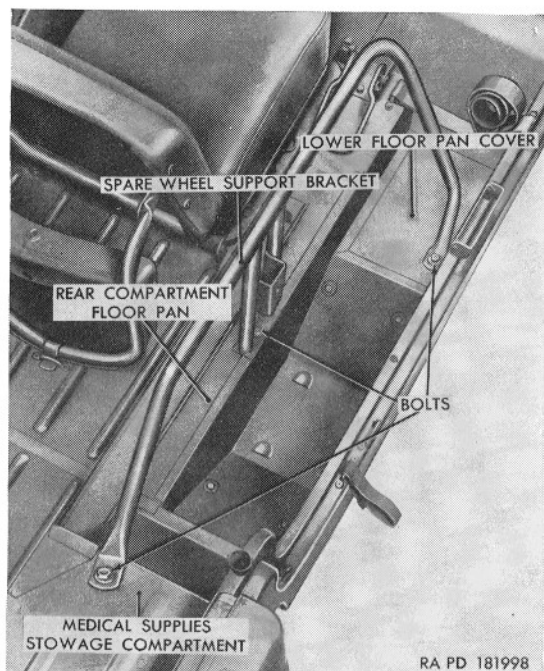


Figure 162.1. (Added) Spare wheel support bracket M170.

220.3. Remove Fuel Tank M170

(fig. 163.1)

(Added)

- a. Place a suitable container under the fuel tank. Remove the drain plug from the bottom of the tank and drain the fuel.
- b. Tilt the driver's seat forward and remove from vehicle.
- c. Unscrew the seven lockwasher screws securing the fuel tank units access plate to the floor of the vehicle.
- d. Unscrew the fuel line nut.
- e. Disconnect the cable bayonet connector from the fuel level sending unit.
- f. Place a stand or blocking under the tank making certain that such stand or blocking clears the fuel tank support strap.
- g. Remove the four nuts and flat washers from the studs on the fuel tank support strap attaching brackets at each end of the fuel tank, and remove the two fuel tank shields and support straps.
- h. Remove the stands or blocking and remove the tank from the vehicle.

223. Seat Assemblies

a. *Disassembly.*

* * * * *

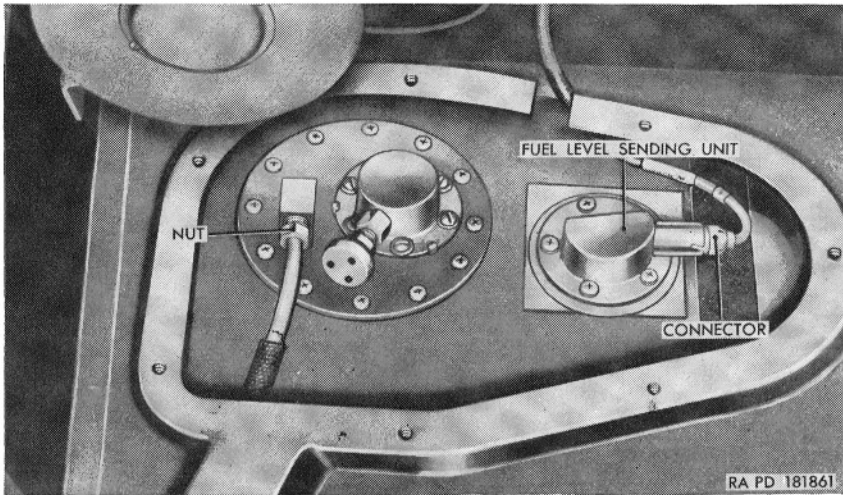


Figure 163.1. Fuel tank, fuel filter, and fuel level sending unit M170—installed—driver's seat and fuel tank units access plate—removed.

(1) *Front seats M38A1.*

* * * * *

(1.1) (Added) *Front seats M170.*

- (a) Remove the sheet metal screws securing the seat cushions, seat backs, and crash pads to the seat frames.
- (b) Remove the coverings from the cushions, backs, and crash pads. Remove the padding and springs.

* * * * *

c. *Assembly.*

(1) *Front seats M38A1.*

* * * * *

- (1.1) (Added) *Front seats M170.* Install the padding and springs on the inside of the coverings for the cushions, backs, and crash pads. Position the cushions, backs, and crash pads on the seat frames and secure with sheet metal screws.

* * * * *

224. Fuel Tank Assembly

(fig. 172)

a. *Disassembly.* It is not necessary to disassemble fuel tank unless inspection (b below) reveals damage. Refer to TM 9-804A for removal of fuel tank from body **on the M38A1 or paragraph 220.3 on the M170.**

* * * * *

c. *Assembly.*

* * * * *

- (4) *Install fuel tank in vehicle.* Refer to TM 9-804A on the M38A1 or paragraph 227.1 on the M170.

226. Install Spare Wheel Support and Fuel Can Bracket Assemblies

a. Spare Wheel Support Bracket M38A1 (fig. 162).

* * * * *

a.1. (Added) Spare Wheel Support Bracket M170 (fig. 162.1).

Position the spare wheel support bracket in the right side of the body to the rear of the passenger seat and secure with three bolts to the body.

* * * * *

226.1. Install Seat Assemblies M170 (Added)

a. Front Seats. Position the hinge pins on the seats over the seat brackets (fig. 142.1) on the front floor pan cover. Tilt the seat forward until the flat side of the hinge pin is alined with the slot in the bracket. Install the pin in the bracket and tilt the seat to the rear of the vehicle.

b. Wheel House Seats. Position the two left wheel house seat cushions (fig. 158.2) in the vehicle and install the five oval-head tapping screws and finish washers in each cushion securing the cushions to the vehicle. Position the two right wheel house seat cushions in the vehicle and install four oval-head screws and washers in each cushion.

227.1. Install Fuel Tank M170 (Added)

a. Install new antisqueak strips to top of tank with adequate adhesive.

b. Raise the tank between the fuel tank support strap attaching brackets and support the tank with stands or suitable blocking. Make certain the fuel tank support straps will clear stands or blocking when being installed.

Caution: Make sure fuel line and fuel level sending unit cable are accessible through the fuel tank units access plate opening and are free from binding.

c. Install the two fuel tank support straps and one tank shield on the fuel tank support bracket studs at one end of the fuel tank and start a $\frac{3}{8}$ -inch nut with washer on the studs. Repeat the procedure at the opposite end of the tank and tighten all four nuts evenly.

d. Remove the stands or blocking.

e. Install the drain plug in the bottom of the tank.

f. Connect the bayonet connector of the fuel level sending unit cable to the sending unit (fig. 163.1).

- g. Install the fuel line nut to the fuel filter assembly (fig. 163.1).
- h. Position the fuel tank units access plate over the opening in the floor pan and secure with seven $\frac{1}{4} \times \frac{1}{2}$ lockwasher screws.
- i. Install the driver's seat by tilting seat forward until pin on seat frame will slide into brackets on the floor of the vehicle. Then tilt seat to the rear of the vehicle.

228. Description

* * * * *

b. *Fenders* (figs. 174 and 175). Both front fenders are similar in design and construction. They are secured to the body, radiator guard assembly, and frame on the **M38A1** in an identical manner. **On the M170 the fender-to-frame bracket has been removed and the fender is not secured to the frame.** The left front fender, however, mounts the blackout driving light and guard, horn, and clips for securing the vehicle wiring harness and fuel line.

236. Description

(fig. 177)

* * * * *

b. *Radiator Guard With Hinges and Hood Liner M38A1.*

* * * * *

c. (Added) *Radiator Guard With Hood Liner M170* (fig. 177.1). The radiator guard is of stamped and welded construction. It is provided with recess-type housings for mounting the service headlights and signal blackout marker and service parking lights (fig. 177.1). The single bolt, washers, and nut (fig. 16.3) secure the radiator guard to the frame. On each side, at the top of the radiator guard, are tie rods (fig. 16.2) connecting the radiator guard to the cowl. Two bolts (fig. 16.1) on each side of the radiator secure the deflector of the guard assembly to the radiator. The hood liner (fig. 16.2) is attached to the upper edge of the guard with split rivets.

237. Data

* * * * *

b. *Radiator Guard With Hinges and Hood Liner M38A1.*

* * * * *

c. (Added) *Radiator Guard With Hood Liner M170.*

Width (across service headlight recesses)----- 39 in.
 Height----- 20 $\frac{1}{8}$ in.
 Depth----- 8 in.

241. Disassembly M38A1

(fig. 177)

* * * * *

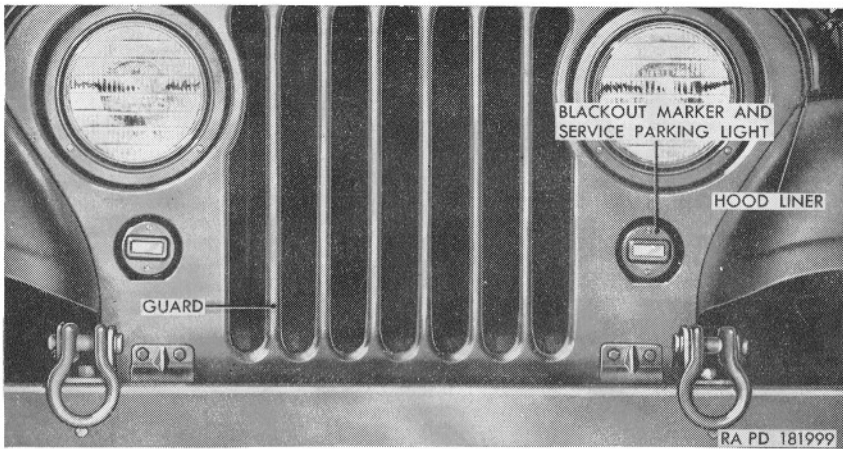


Figure 177.1. (Added) Radiator guard with hood liner M170.

241.1. Disassembly M170

(Added)

Disassembly procedure for the M170 is the same as that for the M38A1 (par. 241) except that *b* and *e* are omitted.

242. Inspection and Repair M38A1

* * * * *

242.1. Inspection and Repair M170

(Added)

Inspection and repair procedures for the M170 are the same as for the M38A1 (par. 242) except that *a* (3) and (4) and *b* (2) are omitted.

243. Assembly M38A1

(fig. 177)

* * * * *

243.1. Assembly M170

(Added)

Assembly procedure for the M170 is the same as that for the M38A1 (par. 243) except that *c* and *d* are omitted.

244. Description

a. Frame M38A1 (fig. 178).

* * * * *

a.1. (Added) Frame M170. The frame is constructed of two heavy channel steel side rails and five cross members. The side rails and cross members are reinforced with welded plates. Two rear reinforcements of a V-shaped design are welded to the side rails and rear cross member. All cross members, except engine rear support cross member,

are welded to the side rails. A stabilizer bar is mounted at the front and the rear of the frame to reduce swaying. Two front lifting shackles and a bumper bar are mounted on the front of the frame. A towing pintle, two rear lifting shackles, and two bumperettes are mounted on the rear of the frame. Brackets and supports provide mounts for the engine, body, shock absorbers, springs, and stabilizer bars.

* * * * *

245. Data M38A1

* * * * *

245.1. Data M170

(Added)

Material	Steel, SAE 950
Length (overall)	148.44 in.
Width (outside edges of side rails)	29.25 in.
Number of cross members	5
Distance between right and left front holddown brackets	31.50 in.
Distance from center line of frame to center line of holddown bracket.	16.063 in.

[AG 451.2 (9 Aug 54)]

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9-347A, Tire Rep Co (1)

9-367, Sup Depot Co (1)

9-387, Ammo Depot Co (1)

NG: Same as active Army except allowance is one copy for each unit.

USAR: None.

Unless otherwise noted, distribution applies to ConUS and overseas.

For explanation of abbreviations used, see SR 320-50-1.